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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,366	09/15/2003	Ronald Kuse	10559/858001/P17306/Intel	1642
20985	7590	10/03/2006	EXAMINER	
FISH & RICHARDSON, PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			BUEKER, RICHARD R	
			ART UNIT	PAPER NUMBER
			1763	
DATE MAILED: 10/03/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,366	Applicant(s) KUSE, RONALD	
	Examiner Richard Bueker	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/5/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/11/05</u> . | 6) <input type="checkbox"/> Other: _____ |

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The prior art search for the elected species claims also uncovered prior art relating to the non-elected species, and therefore the election of species requirement has been removed and all species claims examined.

In claim 12, line 2 "communication" should be changed to "communicate" to correct a typo.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 15, 23-27 and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoshioka (2002/0043215). Yoshioka (see Figs. 24 and 25 and paragraphs 134-142, for example) discloses an apparatus for providing material for a semiconductor process comprising a variable volume bellows chamber (311 of Fig. 25), a pressure detector 301 and a pressure controller comprising a gas source 5 in communication with the pressure detector and variable volume chamber, wherein the pressure controller is for applying a force to the variable volume chamber. The claim 2 recitation of a particular pressure value is a process limitation that does not so limit the present apparatus claims.

Yoshioka's apparatus is inherently capable of practicing this process limitation. The

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claim 6 recitation of an atomic layer deposition process is a recitation of intended use which Yoshioka's apparatus is inherently capable of practicing.

Claims 11-14, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka (2002/0043215) for the reasons stated above, taken in view of Sturm (WO 99/04060). Sturm (see Figs. 1-7, for example) discloses an apparatus for providing material for a semiconductor process analogous to that of Yoshioka (see Sturm's description at page 16, lines 5-7 and 11-17, for example). With respect to applicant's claims 11, 12 and 28, Sturm (Fig. 7 and page 15, lines 18-26) teaches the use of a vacuum source in addition to a gas source as the pressure controller for applying a force to the variable volume chamber. It would have been obvious to one skilled in the art to provide the apparatus of Figs. 24 and 25 of Yoshioka with a vacuum source as taught by Sturm because Sturm (page 16, lines 11-14) teaches that his arrangement allows an advantageous way of refilling the variable volume chamber with liquid. With respect to applicant's claims 13, 14 and 29, Sturm (Fig. 1, for example) teaches the use of a piston for pressurizing a variable volume chamber, and it would have been obvious to one skilled in the art to modify the apparatus of Figs. 24 or 25 of Yoshioka by providing it with a piston as illustrated in Fig. 1 of Sturm, because Sturm teaches that the use of a piston is an alternate and effective means for applying pressure to a variable volume chamber of the type used by Yoshioka.

Claims 1-10, 13-15, 23-27 and 29-30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over

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Horie (6,419,462). Horie (see Fig. 9 and col. 12, line 34 to col. 13, line 40, for example) discloses an apparatus for providing material for a semiconductor process comprising a variable volume bellows chamber, a pressure detector 168 and a pressure controller comprising a gas source 166 in communication with the pressure detector and variable volume chamber, wherein the pressure controller is for applying a force to the variable volume chamber. Horie (col. 12, lines 57-63) also suggests applying force to keep a constant pressure in the variable volume chamber as recited in claims 2 and 24.

Claims 11, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (6,419,462) for the reasons stated above, taken in view of Sturm (WO 99/04060). Horie doesn't explicitly state that the exhaust port 158 is connected to a vacuum source. Sturm (Fig. 7 and page 15, lines 18-26) teaches the use of a vacuum source for exhausting control gas from a variable volume chamber as desired by Horie. It would have been obvious to one skilled in the art to use a vacuum source as the exhaust means of Horie because Sturm teaches that a vacuum source successfully exhausts a control gas as desired by Horie.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka (2002/0043215) or Horie (6,419,462), either taken in view of Londergan (6,905,547). Londergan (see Figs. 6A or 6B and col. 7, lines 44-55, for example) teaches that a material can be provided for an ALD process by a vaporizer that produces a steady state stream of vapor, such as a direct liquid injection vaporizer disclosed by Yoshioka or a generic vaporizer as disclosed by Horie. It would have been obvious to use the vapor supply apparatus of Yoshioka or Horie to supply vapor to an ALD process in view

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of this teaching by Londergan that an ALD process can successfully be supplied with vapor by a vapor supply apparatus of the type disclosed by Yoshioka or Horie.

The prior art made of record and not presently relied upon is considered pertinent to applicant's disclosure. Cok (6,692,094) (see Figs. 13A and 13B, for example) and Mardian (6,787,463) (see Figs. 1-6, for example) disclose further examples of variable volume chambers for providing a material for a semiconductor process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Richard Bueker
Primary Examiner
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